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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
WOZNIAK, JAMES S	

ART UNIT	PAPER NUMBER
2655	

DATE MAILED: 11/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/928,553	KAUFHOLZ, PAUL AUGUSTINUS PETER	
	Examiner	Art Unit	
	James S. Wozniak	2655	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 September 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *13 August 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *9/7/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. In response to the office action from 6/7/2004, the applicant has submitted an amendment, filed 9/7/2004, amending the specification, abstract, and claims 1-14, 16, and 17, while amending Claim 15 into an independent form and arguing to traverse the art rejection based on the limitation regarding "driving the echo canceling facilities to combine their forces" *(Amendment, Page 10)*. Applicant's arguments have been fully considered, however the previous rejection is maintained, altered only with respect to the amended claims, due to the reasons listed below in the response to arguments.

2. Based on the amendments to the abstract and specification, the examiner has withdrawn the previous objections directed towards minor informalities.

Response to Arguments

3. Applicant's arguments have been fully considered but they are not persuasive for the following reasons:

- With respect to **Claim 1**, the applicant argues that the examiner has inferred motivation for the combination of Douma et al (U.S. Patent: 5,583,965) and Brown et al *(U.S. Patent: 6,587,822)* after reading the description of the present

invention *(Amendment, Page 10)*. Firstly, the examiner agrees with the applicant's statement that Douma fails to describe any echo-cancellation feature *(Amendment, Page 9)*. The inclusion of Brown overcomes this deficiency in Douma for the benefit of "obtaining a speech recognition system capable of higher recognition accuracy by canceling out unintended speech inputs from a feedback device" *(Brown, unaffected speech recognition, Col. 6, Line 25) (Non-Final Office Action, Page 4)*. Thus, the combination of Douma and Brown is proper.

Also with respect to Claim 1, the applicant argues that Douma does not consider echo cancellation and Brown fails to suggest "driving the echo canceling facilities to combine their forces" *(Amendment, Page 10)*, however the examiner notes that it is the combination of the teachings of Douma and Brown that teaches this limitation by implementing Brown's echo canceling means in each of Douma's speech controlled devices. Since all speech recognition processing is combined and controlled by a central computer as seen in Fig. 1, Element 10 of Douma, it would be inherent that the echo cancellation processing as taught by Brown would also be also combined as a result. Thus, the rejection of Claim 1 is proper.

- **Claim 8** recites subject matter similar to Claim 1, and thus, remains rejected for the same reasons noted above.

- **Claims 2-7 and 9-14** are argued as being dependent upon independent claims 1 and 8 *(Amendment, Page 11)*, and thus, since those claims remain rejected, the rejection of Claims 2-7 and 9-14 is also maintained.
- With respect to **Claim 15**, the applicant argues that Douma and Brown fail to teach a speech input/output means interconnected between speech recognition and echo canceling facilities, however, as noted above, Douma and Brown teach all of the limitations of claim 1, and Brown further teaches the use of an audio interface for speech input and output as shown in Fig. 2, Element 108, which is situated between a speech synthesizer, Element 116, having echo cancellation means (Brown, Col. 6, Lines 21-225) and a speech recognizer, Element 122, while Brown teaches a multi-device speech recognition system as applied to Claim 1. In this case both references are combinable for the benefit of "providing immediate echo cancellation at a device before speech recognition is performed in order to implement a barge-in mode of operation when a user attempts to speak while an audio feedback device is generating sound" as noted in the Non-final office action *(Page 7)*. Thus, the rejection of Claim 15 is proper.
- **Claims 16-17** are argued as being dependent upon independent claim 15 *(Amendment, Page 12)*, and thus, since those claims remain rejected, the rejection of Claims 16-17 is also maintained.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. **Claims 15-17** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Amended **Claim 15** recites the limitation "said *interconnected* speech recognizing and echo canceling facilities " in Line 6.

There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. **Claims 1-17** are rejected under 35 U.S.C. 103(a) as being unpatentable over Douma et al *(U.S. Patent: 5,583,965)* in view of Brown et al *(U.S. Patent: 6,587,822)*.

With respect to **Claims 1 and 8**, Douma discloses:

A method and system for operating a user-interactive multi-device audio-video system that contains user speech recognizing facilities *(speech control network for multiple audio-video devices connected to a central computer, Col. 3, Lines 2-5, and Fig. 1)*.

Douma does not teach the use of echo canceling facilities to remove a device output from a speech input, however Brown recites:

Echo canceling facilities for avoiding the recognizing of a speech output from the system as user speech *(echo cancellation used to remove device output from a speech recognition input, Col. 6, Lines 21-25)*,

Douma and Brown are analogous art because they are from a similar field of endeavor in speech-controlled systems. Thus, it would have been obvious to a person of ordinary skill in the art, at the time of invention, to combine the echo canceling facilities taught by Brown with the multiple device speech recognition network taught by Douma to avoid possible recognition errors as a result of speech feedback to a user from the feedback device taught by Douma (Fig. 1, Element 22), that could be accepted as a speech command. Also, as it would have been well-known to one of ordinary skill in the art at the time of invention, to provide separate speech processors for each device for in a speech recognition network in order to improve processing efficiency, it would also have been obvious to provide multiple echo canceling facilities for the same purpose. In addition, the recognition and echo canceling results could be communicated to the central computer shown by Douma in Fig. 1 (Element 10) to provide to overall

recognition/cancellation result. Therefore, it would have been obvious to combine Brown with Douma for the benefit of obtaining a speech recognition system capable of higher recognition accuracy by canceling out unintended speech inputs from a feedback device, to obtain the invention as specified in Claim 1.

With respect to **Claims 2 and 9**, Douma in view of Brown teaches the speech recognition network, featuring echo-canceling facilities for avoiding possible recognition errors as a result of speech feedback to a user that could be accepted as a speech command, as applied to Claims 1 and 8. Douma in view of Brown does not teach system configuration in which the echo canceling facilities are connected in series, however, it would have been obvious to one of ordinary skill in the art, at the time of invention, to arrange the echo canceling facilities in series since a system series configuration would be a possible configuration in which all devices could communicate an echo canceling result to the central computer (Fig. 1, Element 10) taught by Douma to produce an overall rejection of an unintended speech input from a user feedback device. Thus, as a possible one of several (for example, parallel or distributed, which is shown in Fig. 1 of Douma) system configurations, it would be obvious to utilize a series arrangement of echo cancellation facilities in order to communicate an overall cancellation result to a central control device.

With respect to **Claims 3 and 10**, Douma in view of Brown teaches the speech recognition network, featuring echo-canceling facilities capable of being arranged in a series configuration for avoiding possible recognition errors as a result of speech feedback to a user that could be accepted as a speech command, as applied to Claims 2 and 9. Additionally, Douma discloses the centralized speech recognition computer as applied to Claims 1 and 8.

With respect to **Claims 4 and 11**, Douma in view of Brown teaches the speech recognition network, featuring echo-canceling facilities capable of being arranged in a series configuration for avoiding possible recognition errors as a result of speech feedback to a user that could be accepted as a speech command, as applied to Claims 2 and 9. Douma in view of Brown does not teach a series configuration of echo canceling devices feeding speech recognition facilities in a distributed manner, however, it would have been obvious to one of ordinary skill in the art, at the time of invention, that utilizing the echo cancellation device of Brown, the central computer taught by Douma would be capable of transmitting, along with the speech recognition data, echo cancellation information to controllable devices connected in series in order to remove a device feedback from an actual speech input since the speech recognition system taught by Douma utilizes a distributed configuration to provide speech command data to multiple controllable devices. Thus, in order to cancel out the speech output of a user feedback device for multiple devices, it would have been obvious to utilize the distributed configuration taught by Douma to prevent any unintended command inputs for any connected device.

With respect to **Claims 5 and 12**, Douma in view of Brown teaches the speech recognition network, featuring echo-canceling facilities for avoiding possible recognition errors as a result of speech feedback to a user that could be accepted as a speech command, as applied to Claims 1 and 8. Douma in view of Brown does not teach the centralization of echo facilities to feed various speech recognizers, however, it would have been obvious to one of ordinary skill in the art, at the time of invention, to utilize the central speech processing computer taught by Douma and applied to Claims 1 and 8, in combination with the echo-canceling device taught by

Brown in order to distribute cancellation information along with command data since Douma utilizes a distributed system configuration to provide speech command data to multiple controllable devices. Thus, in order to cancel out the speech output of a user feedback device for multiple devices, it would have been obvious to utilize the distributed configuration taught by Douma to prevent any unintended command inputs for any connected device.

With respect to **Claims 6 and 13**, Douma teaches the central computer used to perform speech recognition, while Brown teaches a device utilizing combined speech recognition and echo canceling means, as both applied to Claims 1 and 8. Also, it would have been obvious to one of ordinary skill in the art, at the time of invention, to utilize the echo canceling means in the central speech recognition computer taught by Douma in order to prevent an unintended input, from a user feedback device, from being recognized as a speech command by the entire speech recognition system by producing and distributing an input cancellation signal, thus improving command recognition accuracy.

With respect to **Claims 7 and 14**, Douma in view of Brown teaches the speech recognition network, featuring echo-canceling facilities for avoiding possible recognition errors as a result of speech feedback to a user that could be accepted as a speech command, as applied to Claims 1 and 8. Douma in view of Brown does not teach system configuration in which the echo canceling facilities are connected in parallel, however, it would have been obvious to one of ordinary skill in the art, at the time of invention, to arrange the echo canceling facilities in parallel since a system parallel configuration would be a possible configuration in which all devices could communicate an echo canceling result to the central computer (Fig. 1, Element 10) taught by Douma to produce an overall rejection of an unintended speech input from a user

feedback device. Thus, as a possible one of several (for example, series or distributed, which is shown in Fig. 1 of Douma) system configurations, it would be obvious to utilize a parallel arrangement of echo cancellation facilities in order to communicate an overall cancellation result to a central control device.

With respect to **Claim 15**, Douma in view of Brown teaches the speech recognition network, featuring echo-canceling facilities for avoiding possible recognition errors as a result of speech feedback to a user that could be accepted as a speech command, as applied to Claims 1 and 8. Brown further teaches the use of an audio interface for speech input and output as shown in Fig. 2, Element 108, which is situated between a speech synthesizer, Element 116, having echo cancellation means (Brown, Col. 6, Lines 21-225) and a speech recognizer, Element 122, while Brown teaches a multi-device speech recognition system as applied to Claim 1, obvious in combination in order to provide immediate echo cancellation at a device before speech recognition is performed in order to implement a barge-in mode of operation as taught by Brown (Col. 6, Lines 21-23) by canceling out an audio device before a speech command is input for recognition to ensure accurate recognition when a user attempts to speak while an audio feedback device is generating sound.

With respect to **Claim 16**, Douma teaches the speech recognition system as applied to Claim 1. Douma does not teach a means for disabling one or more of speech recognition, echo canceling, or audio output facilities, however Brown discloses:

Control means for selectively disabling one or more of said speech-recognizing facilities, said echo canceling facilities and audio output facilities of the device *(barge-in means for disabling a device audio output to allow a user to input an utterance, Col. 6, Lines 21-23).*

Douma and Brown are analogous art because they are from a similar field of endeavor in speech-controlled systems. Thus, it would have been obvious to a person of ordinary skill in the art, at the time of invention, to combine the barge-in means to disable an audio output to allow a user input as taught by Brown with the speech recognition system for controlling multiple audio-video devices as taught by Douma to disable out an audio device when a speech command is input for recognition to ensure accurate recognition when a user attempts to speak while an audio feedback device is generating sound. Therefore, it would have been obvious to combine Brown with Douma for the benefit of obtaining a speech recognition system capable of preventing an audio output from interfering with a user input through the use of a barge-in function, to obtain the invention as specified in Claim 16.

With respect to **Claim 17**, Douma further discloses:

Microphone out means and furthermore control means for selectively controlling one or more of said speech recognizing facilities, said echo canceling facilities, and said microphone out means *(microphone for controlling speech recognition means to perform an audio-video device operation, Fig. 1, Element 12).*

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to James S. Wozniak whose telephone number is (703) 305-8669 and email is James.Wozniak@uspto.gov. The examiner can normally be reached on Mondays-Fridays, 8:30-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Doris To can be reached at (703) 305-4827. The fax/phone number for the Technology Center 2600 where this application is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the technology center receptionist whose telephone number is (703) 306-0377.

James S. Wozniak
11/16/2004

DAVID OMETZ
PRIMARY EXAMINER
ART UNIT 2653